Exploring the added value of social robots in enhancing social skills in children with autism spectrum disorder

Public defense to obtain the degree of DOCTOR OF PSYCHOLOGY of

Ms. Ramona Simut

which will take place on

Wednesday, 7th of November, at 6pm
Room D0.07

Brussels Humanities, Sciences & Engineering Campus (Etterbeek)

How to reach the VUB: http://www.vub.ac.be/campus/brussels-humanities-sciences-engineering-campus
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Please confirm your attendance before: 1/11/2018 at ramona.simut@vub.be

Jury:
INTERNAL:

Prof. dr. Natacha Deroost (Chair) (Vrije Universiteit Brussel, Faculty of Psychology and Educational Sciences)

Prof. dr. Dirk Lefeber (Vrije Universiteit Brussel, Faculty of Applied Engineering)

EXTERNAL:

Prof. dr. Herbert Roeyers (Ghent University, Faculty of Psychology and Educational Sciences)

Prof. dr. Cristina Costescu (Babes- Bolyai University, Faculty of Psychology and Educational Sciences)

Promotors:

Prof. dr. Johan Vanderfaeillie
(Vrije Universiteit Brussel, Faculty of Psychology and Educational Sciences)
Summary

This doctoral thesis aimed at putting robotics in a clinical framework, by using evidence-based tasks to integrate the robot in social skills treatment for children with ASD. Our critical approach started from the assumption that the general positive responses of children with ASD to robots, mostly obtained from engineer driven work, should not be accepted unquestioningly. Therefore, we addressed several commonly held assumptions in the field. We investigated whether children with ASD performed better in a task assisted by a robot compared to the same task with a human, whether they manifested more social behaviors in interaction with the robot than with the human and if the robot functioned as a social mediator between the child and another human. Some new research questions were also addressed, such as how to integrate social robots in evidence-based treatments to increase social skills in children with ASD and which are the characteristics of children with ASD for whom this approach works the best. We showed that for more than 65 3-7 years old children with ASD, the two social robots we used (Probo and Nao) could not elicit, in general, greater performance in social tasks compared to a human partner. The performance was similar (in most of the studies) or a worse (in some of the studies). Moreover, we showed that the robot Probo did not function as a social mediator for the children and another human partner. This work was also one of the first to explore which characteristics of children with ASD were associated with a good performance in social tasks with a robot. The only variable that was associated with the RJA performance was the level of impairments in social interaction and communication.

Our outcomes showed that social robots may have potential to be good triggers for some social skills among some of the children with ASD. Despite the promising possibilities of robots for ASD therapies (i.e. including the intrinsic appeal of technology of individuals with ASD, robots’ ability to produce simple and isolated social behaviours repetitively, and the fact that they can be readily be programmed and adapted so that each child gets individualized treatment), research in this area is in its infancy, and further research is needed to determine the incremental validity of this approach. There is a need for more controlled studies, with more appropriate clinical guidance, paving the way for effective robot assisted therapies on the long term. Secondly, at this moment, the social robots are not yet ready to deliver interventions because of many technical limitations implying autonomy, accessibility etc. Social robots should not yet be promoted or used outside the research field, in clinical or educational settings.

Curriculum Vitae

Ramona Simut graduated from a master program in Clinical psychology, psychological counseling and psychotherapy at Babes-Bolyai University, Romania. From September 2011 to present, she followed a doctoral program, with the research focus on the clinical use of social robots for children with ASD, at the Clinical and Life Span Psychology Department of Vrije Universiteit Brussel (VUB), with Prof. dr. Johan Vanderfaeille as promotor.

At the moment she is working at two therapy centrum: the Psychotherapeutisch Centrum from Overijse (PTC) and in Brussels University Consultation Center (BRUCC), the therapy centrum of VUB. In PTC she has sessions with families and individual sessions with young adults. In BRUCC she provides psychological services to children and their families, especially in areas of: (1) psychodiagnosis and treatment of neurodevelopmental disorders (e.g. autism spectrum disorder- ASD, attention deficit hyperactivity disorder) and mood disorders (e.g. anxiety, depression) and (2) parental training. She is certified as a Circle of Security® Parenting™ facilitator. Her practice is based on the attachment theory and systemic therapy. She follows a therapy formation (Postgraduate in couple, family and system psychotherapy) for the coming four years. She has also extensive training in early interventions (behavioral, play, sensorial therapy etc.) and more than five years experience as therapist and diagnostician with young children with ASD.